THE FALLACIOUSNESS OF SO-CALLED PATHAGNOMONIC SIGNS IN DIAGNOSTIC WORK.*

By C. M. COOPER, M. B., San Francisco.

Recurrent attacks of abdominal pain combined with a sensitive McBurney point are so commonly associated with a diseased appendix that in the minds and actions of many surgeons this association is given a pathognomonic significance which it does not merit, and the number of reported cases grow monthly in which, because of this symptom complex, an innocent appendix has been removed, whilst the offending ureteral stone situated at the brim of the true pelvis has temporarily eluded observation.

Rovsing in recognition of such fallacies lately described as pathognomonic of appendicitis the test which is now associated with his name (the production of pain at McBurney's point by indirect means), but Lauenstein has already reported a case in which this sign was present in cholycystitis. He concludes "It is not therefore pathognomonic for appendicitis, but merely indicates some circumscribed inflammatory process in the vicinity of the colon."

The continuous presence of occult blood in the stools after a certain restricted diet was for a time accepted as pathognomonic of the presence of a carcinoma of the alimentary tract, but we now know that apart from local rectal diseases the same phenomenon may occur in cirrhosis of the liver.

With the use of the thermometer and the recognition of the almost constant association of fever with inflammatory processes, such fevers came to be looked upon as specific to infections. As yet Freudweiler's studies demonstrating the frequent presence of fever in carcinomatous disease, and this not uncommonly in the absence of ulceration, have not found their way into the general text books, and one frequently hears it erroneously stated at the bedside that an intra-abdominal mass must be of an inflammatory nature because of the presence of more or less continuous fever. A similar misconception often leads to misinterpretation of the fever that may occur in the course of visceral syphilis, lymphosarcoma, lymphadenoma, and the blood diseases.

Respiratory System.—A chronic apical catarrh has so long been associated in our minds with tuberculosis that most of us have at some time erred in regarding such a condition as positively tuberculous when the further course demonstrated its influenzal character. Such occasional exceptions should, however, in no way invalidate the law that all such catarrhs should be treated as though they were tubercular till definitely proven otherwise.

The presence of acid-fast bacilli in the sputum is undoubtedly the surest sign we have of the tubercular nature of a lung ailment, but such bacilli are occasionally found, and yet the ailment be non-tubercular in character.

Given a case in which the findings indicated either a loculated pleurisy communicating with a bronchus or an intra-pulmonic purulent collection, one would think that pieces of lung tissue in the sputum showing the alveolar arrangement would speak imperatively for a diagnosis of the latter condition, yet such a conclusion was wrong in a case under the writer's care in which at operation a loculated empyema was found which communicated through a narrow channel with a bronchus.

A failure to obtain fluid by puncture in a suspected case of pleural effusion is no proof that an effusion is not present. I well remember an instance in which repeated punctures made by different physicians were unsuccessful. The patient refused operation. The postmortem demonstrated an extensive empyema with a greatly thickened pleura.

Cardio-Vascular System.—Many writers assert that all diastolic murmurs heard over the cardiac area denote organic valvular disease, but a diastolic puff is sometimes audible over the aortic and pulmonary regions which is apparently due to a mechanical diastolic movement of the air in the neighboring volume of lung tissue, for it may vary with respiration and may disappear altogether, and be unassociated with any other indications suggesting a valvular lesion. Further, Cabot has reported two cases in which a marked diastolic murmur strongly suggesting aortic incompetence was audible during life, and yet at postmortem the valves and orifice were intact.

Dr. Herbert Moffitt has repeatedly drawn attention to the fact that a malignant endocarditis may run its chronic fatal course exhibiting neither fever nor leukocytosis, both wrongfully supposed to be essential for its diagnosis.

The pear-shaped area of dullness that occurs in some cases of pericardial effusion is frequently absent in that condition, and may be present in some varieties of cardiac dilatation in which, postmortem, no effusion is found.

The presence of a *pulsus alternans* is even now considered pathognomonic of a loss of contractibility by the heart muscle, but apart from the fact that two such men as Hering and Wenchebach are not agreed as to what pulse tracings shall be included under this term, the writer on general principles would doubt its pathognomonic character, and it seems certain that many patients have a heart muscle of diminished contractile power yet never exhibit this variety of pulse.

The Urinary System.—The frequent association of renal colic and renal and ureteral calculi has given rise in the minds of many men to the idea that the presence or absence of one signifies the presence or absence of the other. This was strongly evidenced in a patient with one-sided pyelitis whom the writer saw through the kindness of Dr. Krotoszyner. This patient had passed through the hands of several urologists of good repute, and carried with him many analyses of the individual kidney secretions, but inasmuch as he had never suffered from pain of any kind no hint had been given him as to the possible presence of stones. The radiogram showed the shadows of four calculi in the right kidney pelvis.

* Read at the Thirty-eighth Annual Meeting of the State Society, April, 1908.

Albumen and casts have gradually fallen from their high estate of being the arbiters of the presence or absence of nephritis.

As Deanesley writes, "Blood uniformly mixed with the urine especially when the tint of the mixture has a brown or smoky appearance was formerly believed to be certainly of renal origin, but brown and smoky urine with blood uniformly intermixed may also arise entirely in the bladder when the bleeding is slow and not very abundant."

Accepting Mackenzie's views relative to the cause of the phenomena exhibited during an attack of renal colic, it seems questionable whether the whole complex cannot be imitated by a contraction of the gut segment that bears a spinal segmental relationship similar to that exhibited by the kidney. It is certain that the less violent seizures can be as I have seen such occur on the left side, the result of each seizure being the passage of flatus.

Nervous System.—Headache, vomiting, and optic neuritis are a triad of symptoms that we associate with the presence of a brain tumor or abscess, but Bright's disease and lead poisoning may call forth an identical syndrome; on the other hand a brain tumor may be found at postmortem which has given rise to no symptoms. How a tumor of the frontal region can cause localizing symptoms and signs often considered characteristic of a cerebellar tumor is evident from a perusal of the instructive reports of Collier.

The Babinski reflex is to-day often regarded as pathognomonic of disease of the pyramidal tracts, but Richter long ago reported its presence in one and one-eighth per cent of five hundred healthy persons whom he examined, and Rolleston has reported the frequent temporary development of a dorsal extension response of the big toe during scarlet fever.

Gowers in that fascinating book "Borderland of Epilepsy" in speaking of loss of consciousness in epilepsy, says, "Not long ago it was thought to be a constant feature; without such loss an attack was said not to be epileptic. We now know that minor attacks are common in which consciousness is only dimmed, sometimes hardly a ruffle on its surface attends the sensation which constitutes the slightest form of attack."

Thickened peripheral nerves as evidenced particularly by the ulnar nerves has been considered along with other suggestive signs as characteristic of leprosy, but I was able to demonstrate a number of such cases of ulnar nerve thickening in patients with atrophic muscles, the complex depending on general osteoarthritis.

Glandular and Blood Diseases—Serum Reactions, etc.—The presence of a huge number of lymphocytes associated with a big tumor in the left flank which might be of either renal or splenic origin would seem to point strongly to its splenic source, yet in a case referred to by Dr. Herbert Moffitt the converse proved to be true.

Eosinophilia at one time was considered to occur only in leukemia, but the list of diseases in which it may appear is now yearly growing. Subsequent to the enthusiasm which followed the discovery of the association of eosinophilia with trichinosis, it was looked upon as a constant sign in that disease, thus facilitating the diagnosis, but many exceptions have already been reported to which I am able to add another, the only case of this disease so far under my care. In this patient the eosinophiles numbered less than two per cent though the trichinæ were demonstrated in a piece of excised muscle.

A case of grievous diagnostic error through reliance upon the pathognomicity of that attractively simple, but not absolutely reliable Calmette eye reaction has already come to my notice.

The variation of the opsonic index to a particular organism after some procedure which is supposed to bring about auto-intoxication is in one clinic regarded as pathognomonic of an infection by that organism, but apart from the accuracy of the determining method which has lately been strenuously assailed, we question very much the pathognominity of the test, and believe no diagnosis should be made through reliance on it alone.

Radiographic Diagnosis.—It would seem that here at last one would be likely to obtain pathognomonic characteristics of many diseases, but at the present time such is not the case. An abnormal, apparently pulsatile, shadow in the posterior mediastinum is not always aneurismal notwithstanding statements to the contrary. Renal or ureteral calculi do not throw shadows which are specific in themselves.

The break in shadow continuity of a bone some weeks after its fracture is not pathognomonic that a firm, hard, useful union has not occurred, and Haenish has demonstrated that a syphilitically diseased bone can throw a shadow indistinguishable from that cast by a tumor.

There are a few signs, the names of which express their pathognomonic character. I will instance two.

1st. Gallstone crepitus. The only supposed instance of this that has come under my observation was due to a creaking of the lower rib cartilages.

2nd. Ureteral clots. The most typical worm-like specimens of these I have seen came from an old man with an enlarged, bleeding prostate, these clots having been formed in some part of the urethra.

In conclusion I would suggest that—

1st. The time has come to state and teach that there are no pathognomonic signs of the individual diseases, that the presence of such signs forms only one link in the diagnostic chain, and in no way excuses neglect of thorough and, if necessary, repeated investigations of our patients.

2nd. That the use of pathognomonic terms such as gall stone crepitus and ureteral clots had better be discarded.